

SEQUENCE LISTING

<110> Kim, Kwang-Soo
Kim, Chun-Hyung
Robertson, David

<120> Methods and Reagents for Identifying
Compounds and Mutations That Modulate Dopamine
Beta-Hydroxylase Activity

<130> 04843/097002

<150> US 60/274,095

<151> 2001-03-07

<160> 49

<170> FastSEQ for Windows Version 4.0

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<211> 11

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<213> Homo sapiens

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<212> DNA

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<210> 32

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ctgcaggacg cctgg 15

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ctgcaggacg cctgg 15

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35 40 45
Trp Asn Val Ser Tyr Thr Gln Glu Ala Ile His Phe Gln Leu Leu Val
50 55 60
Arg Arg Leu Lys Ala Gly Val Leu Phe Gly Met Ser Asp Arg Gly Glu
65 70 75 80
Leu Glu Asn Ala Asp Leu Val Val Leu Trp Thr Asp Gly Asp Thr Ala
85 90 95
Tyr Phe Ala Asp Ala Trp Ser Asp Gln Lys Gly Gln Ile His Leu Asp
100 105 110
Pro Gln Gln Asp Tyr Gln Leu Leu Gln Val Gln Arg Thr Pro Glu Gly
115 120 125
Leu Thr Leu Leu Phe Lys Arg Pro Phe Gly Thr Cys Asp Pro Lys Asp
130 135 140
Tyr Leu Ile Glu Asp Gly Thr Val His Leu Val Tyr Gly Ile Leu Glu
145 150 155 160
Glu Pro Phe Arg Ser Leu Glu Ala Ile Asn Gly Ser Gly Leu Gln Met
165 170 175
Gly Leu Gln Arg Val Gln Leu Leu Lys Pro Asn Ile Pro Glu Pro Glu
180 185 190
Leu Pro Ser Asp Ala Cys Thr Met Glu Val Gln Ala Pro Asn Ile Gln
195 200 205
Ile Pro Ser Gln Glu Thr Thr Tyr Trp Cys Tyr Ile Lys Glu Leu Pro
210 215 220
Lys Gly Phe Ser Arg His His Ile Ile Lys Tyr Glu Pro Ile Val Thr
225 230 235 240
Lys Gly Asn Glu Ala Leu Val His His Met Glu Val Phe Gln Cys Ala
245 250 255
Pro Glu Met Asp Ser Val Pro His Phe Ser Gly Pro Cys Asp Ser Lys
260 265 270

Met Lys Pro Asp Arg Leu Asn Tyr Cys Arg His Val Leu Ala Ala Trp
 275 280 285
 Ala Leu Gly Ala Lys Ala Phe Tyr Tyr Pro Glu Glu Ala Gly Leu Ala
 290 295 300
 Phe Gly Gly Pro Gly Ser Ser Arg Tyr Leu Arg Leu Glu Val His Tyr
 305 310 315 320
 His Asn Pro Leu Val Ile Glu Gly Arg Asn Asp Ser Ser Gly Ile Arg
 325 330 335
 Leu Tyr Tyr Thr Ala Lys Leu Arg Arg Phe Asn Ala Gly Ile Met Glu
 340 345 350
 Leu Gly Leu Val Tyr Thr Pro Val Met Ala Ile Pro Pro Arg Glu Thr
 355 360 365
 Ala Phe Ile Leu Thr Gly Tyr Cys Thr Asp Lys Cys Thr Gln Leu Ala
 370 375 380
 Leu Pro Pro Ser Gly Ile His Ile Phe Ala Ser Gln Leu His Thr His
 385 390 395 400
 Leu Thr Gly Arg Lys Val Val Thr Val Leu Val Arg Asp Gly Arg Glu
 405 410 415
 Trp Glu Ile Val Asn Gln Asp Asn His Tyr Ser Pro His Phe Gln Glu
 420 425 430
 Ile Arg Met Leu Lys Lys Val Val Ser Val His Pro Gly Asp Val Leu
 435 440 445
 Ile Thr Ser Cys Thr Tyr Asn Thr Glu Asp Arg Glu Leu Ala Thr Val
 450 455 460
 Gly Gly Phe Gly Ile Leu Glu Glu Met Cys Val Asn Tyr Val His Tyr
 465 470 475 480
 Tyr Pro Gln Thr Gln Leu Glu Leu Cys Lys Ser Ala Val Asp Ala Gly
 485 490 495
 Phe Leu Gln Lys Tyr Phe His Leu Ile Asn Arg Phe Asn Asn Glu Asp
 500 505 510
 Val Cys Thr Cys Pro Gln Ala Ser Val Ser Gln Gln Phe Thr Ser Val
 515 520 525
 Pro Trp Asn Ser Phe Asn Arg Asp Val Leu Lys Ala Leu Tyr Ser Phe
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 Ala Pro Ile Ser Met His Cys Asn Lys Ser Ser Ala Val Arg Phe Gln
 545 550 555 560
 Gly Glu Trp Asn Leu Gln Pro Leu Pro Lys Val Ile Ser Thr Leu Glu
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 595 600

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 ccggagggtt cctggagct ctcatggaat gtcagctaca ccaggaggc catccatttc 180
 cagctcctgg tgcggaggct caaggctggc gtcctgtttg ggatgtccga ccgtggcgag 240
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 gacccaagg attacctcat tgaggacggc actgtccact tgggtctacgg gatcctggag 480
 gagccgttcc ggtcactgga ggccatcaac ggctcggggc tgcagatggg gctgcagagg 540

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| gtgcagctcc | tgaagcccaa | tatccccgaa | ccggagttgc | cctcagacgc | gtgcaccatg | 600 |
| gaggtccaag | ctcccaatat | ccagatcccc | agccaggaga | ccacgtactg | gtgctacatt | 660 |
| aaggagcttc | caaagggcctt | ctctcggcac | cacattatca | agtacgagcc | catcgtcacc | 720 |
| aagggcaatg | aggcccttgt | ccaccacatg | gaagtcttcc | agtgcgcccc | cgagatggac | 780 |
| agcgtccccc | acttcagcgg | gccctgcgac | tccaagatga | aacccgaccg | cctcaactac | 840 |
| tgcgcacacg | tgctggccgc | ctgggccctg | ggtgccaaag | cattttacta | cccagaggaa | 900 |
| gccggccttg | ccttcggggg | tccagggtcc | tccagatatc | tccgcctgga | agttcactac | 960 |
| cacaacccac | tggatgata | aggacgaaac | gactcctcag | gcacccgctt | gtactacaca | 1020 |
| gccaaagctgc | ggcgcttcaa | cgcggggac | atggagctgg | gactggtgta | cacgccagt | 1080 |
| atggccattc | caccacggga | gaccgccttc | atcctcactg | gctactgcac | ggacaagtgc | 1140 |
| acccagcttg | cactgcctcc | ctccgggac | cacatcttcg | cctctcagct | ccacacacac | 1200 |
| ctgactggga | gaaaggtggt | ccagtgctg | tccggggacg | gccgggagtg | ggagatcgtg | 1260 |
| aaccaggaca | atcactacag | ccctcacttc | caggagatcc | gcattgtgaa | gaaggctcgtg | 1320 |
| tccgtccatc | cgggagatgt | gctcatcacc | tcctgcacgt | acaacacgga | agaccgggag | 1380 |
| ctggccacag | tggggggctt | cgggatcctg | gaggagatgt | gtgtcaacta | cgtgcactac | 1440 |
| tacccccaga | cgcagctgga | gctctgcaag | agcgtgtgtg | acgccggcct | cctgcagaag | 1500 |
| tacttccacc | tcatcaacag | gttcaacaac | gaggatgtct | gcacctgccc | tcaggcgtcc | 1560 |
| gtgtctcagc | agttcacctc | tgttccctgg | aactccttca | accgcgacgt | actgaaggcc | 1620 |
| ctgtacagct | tcgcgcccat | ctccatgcac | tgcaacaagt | cctcagccgt | ccgcttccag | 1680 |
| ggtgaatgga | acctgcagcc | cctgcccacg | gtcatctcca | cactggaaga | gccacccca | 1740 |
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| ctggctcctt | ttgggggctc | tgggagggga | atctgttccc | accttttcca | gctaccagag | 120 |
| gcctccacat | cccttggtc | atggcccctg | ctccgtcttg | gaagcagcct | cctctccttg | 180 |
| gaccccatca | atgcatctcc | ttctctctct | cgtaggacct | ttgtgatgac | atgggggtcca | 240 |
| cccagccaat | ccaagaccac | ctcccacctc | cgggtcctta | atctaatac | actgaatgtc | 300 |
| ccttccccag | gtagcctacc | cgacttgcag | ggatctggac | gtggccattg | ggggacatcc | 360 |
| ctctgtctgt | cacaccacac | gccagaagct | cagagagatt | ccaggaggag | aggcggattc | 420 |
| tcattgttct | cgagaccctc | ctggggccaga | gccctgcctg | ttggaccctg | tgatgtcagt | 480 |
| gggtgcagca | gcccccgaga | tggatgcggg | tgagggcagc | ccggggctgt | ctcgttagcc | 540 |
| ctcactgcat | cggccccatt | ctgggtcaat | ggtaggtcaa | cctggtggat | ctctgaggtg | 600 |
| accaagctta | ctgacagatg | aactacagcc | tcaggaagag | ggtcatggct | ggcaggagcc | 660 |
| agcggggggc | aagaccagca | gccctgagtg | ctggtgcagg | ccacgcaggg | cccagcctct | 720 |
| gtagccagaa | gtcagcgcca | gtgccgggtc | tgagcaagat | ggccatttca | cagatgagga | 780 |
| agaagggctc | agggctgttg | ggactgtccg | ggtgggtcac | atggccggca | ggtttcaggg | 840 |
| cctctctttc | catctgggtg | ccacagttac | gctgtggctt | gggtgtggtc | tggagctact | 900 |
| gacctaggac | ccaccacat | cctggcagtg | tggctccctc | agaaaagctg | aaaatgcaaa | 960 |
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| ggggctgctt | ggggtcacac | aggagtggcc | tggcaggcct | ggcagcccca | gccctggagc | 1380 |
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| cacgataccg | acctcttctg | ggatcagtg | ccccttgctt | ttggcacaga | gcttcagggc | 1500 |
| cagaggggtg | ctctaatacca | gtagctgagg | aaagctttca | gtgggtgctc | gggcacctct | 1560 |
| gtgacctgcc | ctgggcccag | tcctcatgct | gatccactg | tagccaccct | actcagtgcc | 1620 |
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| gggactgggc | cagacagcct | gtgaggcagt | cagctgggtg | ctggccagag | ggtgtctgaa | 5460 |
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| aattggattc | cccgtctagc | aaatgtgatt | accctgtgct | cctggaccca | ccccattcag | 5700 |
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| cagtggccat | cttctgtgtc | atcctgggtg | ccgcaactgca | gggctcggct | ccccgtgaga | 5880 |
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| tcctgttttg | gatgtccgac | cgtggcgagc | ttgagaacgc | agatctctgt | gtgctctgga | 6060 |
| ccgctgggga | cactgcctat | tttgccgtga | gtctctcctc | cctgccagct | ctccaaaccc | 6120 |
| ttcctgaccc | ggcaccccat | ctggccgtct | ttctgcactc | accctcctta | accagaaag | 6180 |
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| atgggactgg | ccaccagggc | ttctttgtgg | atgaaaccca | actctctcca | cagaaacaca | 6900 |
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| tttccgtgca | ctggcaaggt | taatttgcac | aacaaattcc | tacgaaagca | aatgtcagcc | 7560 |
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| cactcgcaca | agacaatgag | agcaagtgcc | aggtggtgac | acataggcct | agacagccag | 26760 |
| ccagccagca | gagagagagg | agagaggaga | gagaggagag | agaggagaga | gaggagagag | 26820 |
| ggagagggag | agagggagag | ggagagagga | gagagagagg | agagagagag | agagagagag | 26880 |
| agggagagag | agagaaccaa | taacgaggca | aggaaggagg | ggcaggcacc | ctctctggtg | 26940 |
| acacctccac | actgtaccga | atgccaaatg | caggtggtgt | gagcagggcg | cactaacctg | 27000 |
| cctaaaaata | aagcaccagg | ggaggggaag | gtaagaaacg | aaccagtctg | aagctgcgag | 27060 |
| ctggtttttt | cctccttatc | tgagaccac | tggtattcga | aggcatctaa | tttatcctgg | 27120 |
| gcccactggg | ctgtggtcag | gaggccaggg | cctatgcaga | gttagtcgag | taaggtgccg | 27180 |
| cagcctggag | atccaggaag | atccttccca | gaagcatttg | ggagccagat | taactgctaa | 27240 |
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| ggggtggacg | tctgatgggg | ttgaaaactt | ggcatttggt | gtagccttga | ggggaagaga | 27360 |
| tagctaaaaa | atatcagagc | ctgcagccag | gggctctggt | tgctacacta | gggtgaatga | 27420 |
| ttaaattggg | tggggacaga | ggcggggaga | ggcctggatg | actcccagg | tcctgactag | 27480 |
| gtgaatggga | agccagggga | gggggcattt | actgaggtga | ggacccccaa | aaagcaactt | 27540 |
| gggggagcag | agtgaattca | gtttgagaca | agctgagttt | gagggcaaga | atccaagagg | 27600 |
| tggtctggaa | gtggctgggg | aagcagccac | ccatcttgcc | cctccagcct | cagtttacct | 27660 |
| cctgccccct | tccttgccag | gtgaatggaa | cctgcagccc | ctgcccagg | tcctctccac | 27720 |
| actggaagag | cccacccac | agtgcgccac | cagccagggc | cgaagccctg | ctggggccac | 27780 |
| cggtgtcagc | attggtgggg | gcaaaggctg | aggggggacc | tactcctccc | cctcctccat | 27840 |
| gctgtccctg | tgggctcaca | ccggcactgt | gcactctact | ctgcgacgat | ccccatggaa | 27900 |
| cagccctgca | cgcccaggat | gaagggggcca | gaccacgccc | ctgcctgaga | ccacgggtcca | 27960 |
| atccagcctt | cttccccccag | ggtcccctgc | atggtcgaga | gggtgtgggt | gccctgttga | 28020 |
| cctaccctgg | accgagtggga | ccacgacctc | gtccatttaa | acccggctga | ctcagtgcag | 28080 |
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| aacacctggg | gggcacttgt | agcctgccga | tctcgggcag | ggaaactgag | actcccagat | 29340 |
| aagtacctca | cctggggccc | aagagcggca | gtgattggga | atcctagcca | gctctggaac | 29400 |
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| cccacactga | ggctatgcac | agccgtggca | atctcgtgaa | gccatgtagt | ttctgtttcc | 29640 |
| attgatggag | gaggaactg | aggctcagag | acctaaagtt | aggtgccaag | gtcaccagca | 29700 |
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| tgcttactta | ggaaacagga | atttccccag | gacccttggt | ggggatttta | tctaaaataa | 29820 |
| gttccttatt | tagaggctta | ggggaagtgc | tttgttacct | gaaaatgacc | tacatgcccc | 29880 |
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| cttgggtctc | cctatctgcc | caccgaggag | agggttcccc | agcctcccag | ggggcagggg | 30060 |
| ctgctagggg | ggcacaacct | cccactctgt | aggtgctcag | agccctgggg | tgaggaatgc | 30120 |

```

tcattgcccac cagtgttgag agaagtgggg cgaccccagg ctccagccag cataggggtg 30180
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```

```

<210> 38
<211> 11
<212> PRT
<213> Homo sapiens

```

```

<220>
<221> VARIANT
<222> 6
<223> Xaa at position 6 can be Valine, Methionine, or
      aconservative substitution for either Valine or
      Methionine or can be absent.

```

```

<400> 38
Glu Asn Ala Asp Leu Xaa Val Leu Trp Thr Asp
 1             5             10

```

```

<210> 39
<211> 21
<212> PRT
<213> Homo sapiens

```

```

<220>
<221> VARIANT
<222> 11
<223> Xaa at position 11 can be Valine, Methionine or
      can be a conservative substitution for either
      Valine or Methionine, or can be absent.

```

```

<400> 39
Asp Arg Gly Glu Leu Glu Asn Ala Asp Leu Xaa Val Leu Trp Thr Asp
 1             5             10             15
Gly Asp Thr Ala Tyr
          20

```

```

<210> 40
<211> 31
<212> PRT
<213> Homo sapiens

```

```

<220>
<221> VARIANT
<222> 16

```

<223> Xaa at position 16 can be Valine, Methionine or
can be a conservative substitution for either
Valine or Methionine or can be absent.

<400> 40

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Phe | Gly | Met | Ser | Asp | Arg | Gly | Glu | Leu | Glu | Asn | Ala | Asp | Leu | Xaa |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Val | Leu | Trp | Thr | Asp | Gly | Asp | Thr | Ala | Tyr | Phe | Ala | Asp | Ala | Trp | |
| | | | 20 | | | | | 25 | | | | | 30 | | |

<210> 41

<211> 41

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> 21

<223> Xaa at position 21 can be Valine, Methionine or
can be a conservative substitution for either
Valine or Methionine or can be absent.

<400> 41

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Lys | Ala | Gly | Val | Leu | Phe | Gly | Met | Ser | Asp | Arg | Gly | Glu | Leu | Glu |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Asn | Ala | Asp | Leu | Xaa | Val | Leu | Trp | Thr | Asp | Gly | Asp | Thr | Ala | Tyr | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Asp | Ala | Trp | Ser | Asp | Gln | Lys | Gly | | | | | | | |
| | | 35 | | | | | 40 | | | | | | | | |

<210> 42

<211> 12

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> 7

<223> Xaa at position 7 can be Aspartic Acid, Glutamic
Acid, or can be a conservative substitution for
either Aspartic Acid or Glutamic Acid or can be
Absent.

<400> 42

| | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Thr | Ala | Tyr | Phe | Ala | Xaa | Ala | Trp | Ser | Asp | Gln |
| 1 | | | | 5 | | | | 10 | | | |

<210> 43

<211> 21

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> 11

<223> Xaa at position 11 can be Aspartic Acid, Glutamic

Acid or a conservative substitution for either
Aspartic Acid or Glutamic Acid or can be absent.

<400> 43

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Thr | Asp | Gly | Asp | Thr | Ala | Tyr | Phe | Ala | Xaa | Ala | Trp | Ser | Asp | Gln |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Gly | Gln | Ile | His | | | | | | | | | | | |
| | | | 20 | | | | | | | | | | | | |

<210> 44

<211> 31

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> 16

<223> Xaa at position 16 can be Aspartic Acid, Glutamic
Acid or can be a conservative substitution for
either Aspartic Acid or Glutamic Acid or can be
absent.

<400> 44

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Leu | Val | Val | Leu | Trp | Thr | Asp | Gly | Asp | Thr | Ala | Tyr | Phe | Ala | Xaa |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Trp | Ser | Asp | Gln | Lys | Gly | Gln | Ile | His | Leu | Asp | Pro | Gln | Gln | |
| | | | 20 | | | | 25 | | | | | | 30 | | |

<210> 45

<211> 41

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> 21

<223> Xaa at position 21 can be Aspartic Acid, Glutamic
Acid or can be a conservative substitution for
either Aspartic Acid or Glutamic Acid or can be
absent.

<400> 45

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Leu | Glu | Asn | Ala | Asp | Leu | Val | Val | Leu | Trp | Thr | Asp | Gly | Asp | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Tyr | Phe | Ala | Xaa | Ala | Trp | Ser | Asp | Gln | Lys | Gly | Gln | Ile | His | Leu |
| | | | 20 | | | | 25 | | | | | | 30 | | |
| Asp | Pro | Gln | Gln | Asp | Tyr | Gln | Leu | Leu | | | | | | | |
| | | 35 | | | | 40 | | | | | | | | | |

<210> 46

<211> 11

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> 6
 <223> Xaa at position 6 can be Aspartic Acid, Glutamic
 Acid or can be absent.

<400> 46
 Ile Glu Gly Arg Asn Xaa Ser Ser Gly Ile Arg
 1 5 10

<210> 47
 <211> 21
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 11
 <223> Xaa at position 11 can be Aspartic Acid, Glutamic
 Acid, or can be a conservative substitution for
 either Aspartic Acid or Glutamic Acid or can be
 absent.

<400> 47
 His Asn Pro Leu Val Ile Glu Gly Arg Asn Xaa Ser Ser Gly Ile Arg
 1 5 10 15
 Leu Tyr Tyr Thr Ala
 20

<210> 48
 <211> 31
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 16
 <223> Xaa at position 16 can be Aspartic acid, Glutamic
 Acid or can be a conservative substitution for
 either Aspartic Acid or Glutamic Acid or can be
 absent.

<400> 48
 Leu Glu Val His Tyr His Asn Pro Leu Val Ile Glu Gly Arg Asn Xaa
 1 5 10 15
 Ser Ser Gly Ile Arg Leu Tyr Tyr Thr Ala Lys Leu Arg Arg Phe
 20 25 30

<210> 49
 <211> 41
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 21
 <223> Xaa at position 21 can be Aspartic Acid, Glutamic
 Acid or can be a conservative substitution for

either Aspartic Acid or Glutamic Acid or can be
absent.

<400> 49

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Arg | Tyr | Leu | Arg | Leu | Glu | Val | His | Tyr | His | Asn | Pro | Leu | Val | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Gly | Arg | Asn | Xaa | Ser | Ser | Gly | Ile | Arg | Leu | Tyr | Tyr | Thr | Ala | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Arg | Arg | Phe | Asn | Ala | Gly | Ile | Met | | | | | | | |
| | | 35 | | | | | 40 | | | | | | | | |